Remarks

No amendments have been made. The Examiner states in the "response to arguments" section that "measuring Q values and S/N ratios as is done in Taga et al inherently measures noise and amplitude distortion which is the whole purpose of the invention."

With respect, this is not entirely correct, since claim 1 specifies "determining the amplitude distortion component" in a signal "subject to noise and amplitude distortion components", and Taga does not show this feature and cannot achieve this "inherently" as will now be explained.

Taga et al. is simply a faster way of measuring Q by using multiple decision circuits and has absolutely nothing to do with separating a noise component from a distortion component. In fact the word distortion does not occur in Taga et al.

Taga shows measuring a Q value by interpolation from a series of BER values at different decision levels in a receiver. Taga (and the present application) acknowledges it was known to sweep though these different decision values to obtain the BER values. Taga indicates that fading over time means the BER values vary during the sweep and so the interpolation contains an error depending on the amount of fading. So Taga proposes taking many decisions simultaneously by providing a signal splitter and multiple decision circuits with different decision levels. This type of Q measurement provides a value which can be regarded as representing the ratio of the eye opening to the noise. It cannot provide a value of the eye opening itself. So the Q measurement in Taga is a form of signal to noise ratio, but provides no information about any distortion component.

It is therefore possible to have two optical signals with the same Q value where one signal has a large distortion component (and therefore a small eye opening), but has a small noise component and the other signal has small distortion component (and therefore a large eye opening) and a large noise component.

Measurement of these two signals according to Taga et al would give the same resulting Q and would not distinguish between them. Therefore Taga cannot determine an amplitude distortion component as claimed. Embodiments of the claimed invention would also give the same Q value, but in contrast to Taga, would also provide a measure of the distortion component (based on eye opening) alone. The examiner says that Taga measures Q on signals subject to distortion. This is true, but Taga fails to show determining a distortion component separately from the noise, and cannot "inherently" measure amplitude distortion.

Dependent claims 2 to 8 and 16 to 19 and 28 depend on claim 1 and so are submitted to be allowable for the same reasons. Independent claim 9 has corresponding distinctive features to those of claim 1 and so is allowable for the same reasons. Dependent claims 10 to 14 depend on claim 9 and so are allowable for the same reasons. Claim 15 has already been allowed. Independent claim 20 has distinctive features corresponding to those of claim 1 and so is allowable for the same reasons. Dependent claims 21 to 25 and 27 depend on claim 20 and so are allowable for the same reasons. Independent claim 26 has been allowed.

The Examiner's indication of which dependent claims could be allowable is appreciated. All the points raised have been dealt with, all the claims are submitted to be allowable as presently cast, and reconsideration is requested.

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Respectfully submitted,

William M. Lee, Jr.

William M. Lee, Jr.
Registration No. 26,935
Barnes & Thornburg LLP
P.O. Box 2786
Chicago, Illinois 60690-2786
(312) 214-4800
(312) 759-5646 (fax)